## CLAIMS

**What is claimed is:**

1. A sub-aperture transceiver system for an ultrasound probe, the system comprising:

a signal processor;

receive signal connections coupling the signal processor to a receive aperture comprising acoustic transceiver elements;

transmit signal connections coupled to a transmit aperture comprising at least one acoustic transceiver element multiplexed with the receive aperture;

a receive aperture output driven by the signal processor for carrying a signal obtained over the receive aperture.

2. The system of claim 1, where the receive aperture is a triangular aperture.

3. The system of claim 1, where the transmit aperture is square.

4. The system of claim 1, where the receive aperture comprises at least two uneven rows of acoustic transceiver elements.

5. The system of claim 1, where the receive signal connections couple the signal processor to a plurality of receive apertures.

6. The system of claim 1, where the transmit signal connections couple the signal processor to a plurality of transmit apertures.

7. The system of claim 6, where the receive apertures are triangular receive apertures.

8. The system of claim 1, where the signal processor is one of a plurality of signal processors distributed over a plurality of processing boards.

9. The system of claim 8, where the receive signal connections further couple each signal processor to a plurality of receive apertures.

10. A sub-aperture transceiver system comprising:

a first processing board;

a second processing broad; and

receive signal connections for a plurality of receive apertures distributed between the first and second processing boards;

where the receive signal connections couple each receive aperture to at least one of the processing boards without partitioning any receive aperture between the processing boards.

11. The system of claim 10, further comprising:

transmit signal connections for a plurality of transmit apertures distributed between the first and second processing boards,

where the transmit signal connections couple each transmit aperture to at least one of the processing boards without partitioning any transmit aperture between the processing boards.

12. The system of claim 10, further comprising:

transmit signal connections for a plurality of transmit apertures distributed between the first and second processing boards,

where at least one transmit aperture comprises a transducer element multiplexed between at least on receive aperture.

13. The system of claim 10, further comprising a first cable bearing selected ones of the receive signal connections to the first processing board and a second cable bearing selected ones of the signal connections to the second processing board.

14. The system of claim 13, where the first and second cable are flex cables.

15. The system of claim 13, where the cable comprises selected ones of the receive signal connections for a first transducer array line.

16. The system of claim 10, further comprising a first signal processor on the first processing board and a second signal processor on the second processing board.

17. The system of claim 16, where the first signal processor is coupled to a plurality of receive apertures through the receive signal connections and where the second signal processor is coupled to a plurality of receive apertures through the receive signal connections.

18. The system of claim 10, where the receive apertures are triangular receive apertures.

19. The system of claim 12, where the transmit apertures are square transmit apertures.

20. The system of claim 10, where the first and second processing boards are disposed in an ultrasound probe.

21. A method in an ultrasound system for sub-aperture processing, the method comprising the steps of:

receiving, at a signal processor, a plurality of receive signals from acoustic transducer elements that comprise a receive aperture;

multiplexing at least one of the acoustic transducer elements between the receive aperture and a transmit aperture; and

driving a receive aperture output coupled to the signal processor with a signal obtained over the acoustic transducer elements in the receive aperture.

22. The method of claim 21, where the receive aperture is a triangular aperture.

23. The method of claim 21, where the transmit aperture is square.

24. The method of claim 21, where the step of receiving comprises the step of:

receiving, for a plurality of receive apertures, receive signals distributed to a first signal processor on a first a first processing board and a second signal processor on a second processing broad without partitioning any receive aperture between the processing boards.

25. The method of claim 21, further comprising the step of:

coupling transmit signals to a plurality of transmit apertures over transmit signal connections distributed between the first and second processing boards,

where the transmit signal connections couple each transmit aperture to at least one of the processing boards without partitioning any transmit aperture between the processing boards.